

WHAT IS CLAIMED IS:

1. An iron-based cleaning powder comprising iron alloy powder produced with an atomization process, wherein said iron alloy powder contains at least Mn in the range of 0.3 to 1.1 mass%, passes a 300  $\mu\text{m}$ -mesh sieve at a proportion of not less than 90%, and has an  $\text{H}_2$ -reduction mass loss of 0.1 to 0.8%, said iron alloy powder having a martensite structure or a tempered martensite structure.

2. An iron-based cleaning powder comprising iron alloy powder produced with an atomization process, wherein said iron alloy powder contains at least Ni in the range of 0.2 to 12 mass%, passes a 300  $\mu\text{m}$ -mesh sieve at a proportion of not less than 90%, and has an  $\text{H}_2$ -reduction mass loss of 0.1 to 1.0%, said iron alloy powder having a martensite structure or a tempered martensite structure.

3. An iron-based cleaning powder in the form of mixed powder or partially alloyed powder, which is made up of iron powder and Ni-containing powder,

wherein said iron powder passes a 300  $\mu\text{m}$ -mesh sieve at a proportion of not less than 90% and has an  $\text{H}_2$ -reduction mass loss of 0.1 to 1.0%, said iron powder having a martensite structure or a tempered martensite structure, and

said Ni-containing powder has a Ni content of not less than 40% and passes a 45  $\mu$ m-mesh sieve at a proportion of not less than 90%.

4. The iron-based cleaning powder according to Claim 3, wherein said Ni-containing powder has an H<sub>2</sub>-reduction mass loss of 0 to 1.0%.

5. The iron-based cleaning powder according to Claim 3, wherein a ratio of said iron powder to said Ni-containing powder (iron powder/Ni-containing powder) is in the range of 99.5/0.5 to 80/20 (mass ratio).